



## SEQUENCE LISTING

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<120> ESE GENES AND PROTEINS

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<140> US 09/674,237

<141> 1999-04-27

<150> PCT/CA99/00375

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<150> US 60/118,739

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gcg	atg	cac	ctc	act	gac	atg	gcc	aaa	gct	gga	cag	cca	cta	cca	ctg	960
Ala	Met	His	Leu	Thr	Asp	Met	Ala	Lys	Ala	Gly	Gln	Pro	Leu	Pro	Leu	
305					310				315						320	
acg	ttg	cct	ccc	gag	ctt	gtc	cct	cca	tct	ttc	aga	ggg	gga	aag	caa	1008
Thr	Leu	Pro	Pro	Glu	Leu	Val	Pro	Pro	Ser	Phe	Arg	Gly	Gly	Lys	Gln	
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gtt	gat	tct	gtt	aat	gga	act	ctg	cct	tca	tat	cag	aaa	aca	caa	gaa	1056
Val	Asp	Ser	Val	Asn	Gly	Thr	Leu	Pro	Ser	Tyr	Gln	Lys	Thr	Gln	Glu	
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gaa	gag	cct	cag	aag	aaa	ctg	cca	gtt	act	ttt	gag	gac	aaa	cgg	aaa	1104
Glu	Glu	Pro	Gln	Lys	Lys	Leu	Pro	Val	Thr	Phe	Glu	Asp	Lys	Arg	Lys	
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gcc	aac	tat	gaa	cga	gga	aac	atg	gag	ctg	gag	aag	cga	cgc	caa	gtg	1152
Ala	Asn	Tyr	Glu	Arg	Gly	Asn	Met	Glu	Leu	Glu	Lys	Arg	Arg	Gln	Val	
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Leu	Met	Glu	Gln	Gln	Gln	Arg	Glu	Ala	Glu	Arg	Lys	Ala	Gln	Lys	Glu	
385					390				395						400	
aag	gaa	gag	tgg	gag	cgg	aaa	cag	aga	gaa	ctg	caa	gag	caa	gaa	tgg	1248
Lys	Glu	Glu	Trp	Glu	Arg	Lys	Gln	Arg	Glu	Leu	Gln	Glu	Gln	Glu	Trp	
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Lys	Lys	Gln	Leu	Glu	Leu	Glu	Lys	Arg	Leu	Glu	Lys	Gln	Arg	Glu	Leu	
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Glu	Arg	Gln	Arg	Glu	Glu	Glu	Arg	Arg	Lys	Glu	Ile	Glu	Arg	Arg	Glu	
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gca	gca	aaa	cag	gag	ctt	gag	aga	caa	cgc	cgt	tta	gaa	tgg	gaa	aga	1392
Ala	Ala	Lys	Gln	Glu	Leu	Glu	Arg	Gln	Arg	Arg	Leu	Glu	Trp	Glu	Arg	
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ctc	cgt	cgg	cag	gag	ctg	ctc	agt	cag	aag	acc	agg	gaa	caa	gaa	gac	1440
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Ile	Val	Arg	Leu	Ser	Ser	Arg	Lys	Lys	Ser	Leu	His	Leu	Glu	Leu	Glu	
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gca	gtg	aat	gga	aaa	cat	cag	cag	atc	tca	ggc	aga	cta	caa	gat	gtc	1536
Ala	Val	Asn	Gly	Lys	His	Gln	Gln	Ile	Ser	Gly	Arg	Leu	Gln	Asp	Val	

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Gln Ile Arg Lys Gln Thr Gln Lys Thr Glu Leu Glu Val Leu Asp Lys																				
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Gln Cys Asp Leu Glu Ile Met Glu Ile Lys Gln Leu Gln Gln Glu Leu																				
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Lys Glu Tyr Gln Asn Lys Leu Ile Tyr Leu Val Pro Glu Lys Gln Leu																				
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Gln Lys Arg Leu Gln Glu Glu Lys Ser Gln Asp Lys Thr Gln Glu Glu																				
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Glu Pro Gly Trp Leu Tyr Gly Ser Phe Gln Gly Lys Phe Gly Trp Phe	
755 760 765	
ccc tgc aac tat gta gaa aaa gtg ctg tca agt gaa aaa gct ctg tct	2352
Pro Cys Asn Tyr Val Glu Lys Val Leu Ser Ser Glu Lys Ala Leu Ser	
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Pro Lys Lys Ala Leu Leu Pro Pro Thr Val Ser Leu Ser Ala Thr Ser	
785 790 795 800	
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Thr Ser Ser Gln Pro Pro Ala Ser Val Thr Asp Tyr His Asn Val Ser	
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Phe Ser Asn Leu Thr Val Asn Thr Thr Trp Gln Gln Lys Ser Ala Phe	
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Gln Ala Val Glu Asn Leu Lys Ala Gln Ala Leu Cys Ser Trp Thr Ala	
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Lys Lys Glu Asn His Leu Asn Phe Ser Lys His Asp Val Ile Thr Val	
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ctg gag cag cag gaa aac tgg tgg ttt ggg gag gtg cac gga gga aga	2688
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cag cga gga gag cca gaa gct ttg tat gca gct gtg act aag aaa cct	2784
Gln Arg Gly Glu Pro Glu Ala Leu Tyr Ala Ala Val Thr Lys Lys Pro	
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Thr Ser Thr Ala Tyr Pro Val Thr Ser Thr Ala Tyr Pro Val Gly Glu	
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gac tac att gca ctt tat tca tac tca agt gta gag ccc ggg gat ttg	2880
Asp Tyr Ile Ala Leu Tyr Ser Tyr Ser Ser Val Glu Pro Gly Asp Leu	
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Thr Phe Thr Glu Gly Glu Glu Ile Leu Val Thr Gln Lys Asp Gly Glu	
965 970 975	
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Trp Trp Thr Gly Ser Ile Gly Glu Arg Thr Gly Ile Phe Pro Ser Asn	
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Tyr Val Arg Pro Lys Asp Gln Glu Asn Phe Gly Asn Ala Ser Lys Ser	
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Gly Ala Ser Asn Lys Lys Pro Glu Ile Ala Gln Val Thr Ser Ala	
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Tyr Ala Ala Ser Gly Thr Glu Gln Leu Ser Leu Ala Pro Gly Gln	
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Leu Ile Leu Ile Leu Lys Lys Asn Thr Ser Gly Trp Trp Gln Gly	
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Glu Leu Gln Ala Arg Gly Lys Lys Arg Gln Lys Gly Trp Phe Pro	
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Pro Thr Phe His Ala Val Cys Gln Val Ile Ala Met Tyr Asp Tyr	
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Ile Asn Val Met Asn Lys Asp Asp Pro Asp Trp Trp Gln Gly Glu	
1115 1120 1125	
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1130 1135 1140	
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Ile His Glu Leu Ile Gln Thr Glu Glu Arg Tyr Met Asp Asp Leu  
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3594

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Leu Gln Ser Gly Leu Pro Ala Pro Val Leu Ala Glu Ile Trp Ala Leu  
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Ser Asp Leu Asn Lys Asp Gly Lys Met Asp Gln Gln Glu Phe Ser Ile  
 65 70 75 80

Ala Met Lys Leu Ile Lys Leu Lys Leu Gln Gly Gln Gln Leu Pro Val  
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Val Leu Pro Pro Ile Met Lys Gln Pro Pro Met Phe Ser Pro Leu Ile  
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Ser Ala Arg Phe Gly Met Gly Ser Met Pro Asn Leu Ser Ile His Gln  
 115 120 125

Pro Leu Pro Pro Val Ala Pro Ile Ala Thr Pro Leu Ser Ser Ala Thr  
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Ser Gly Thr Ser Ile Pro Pro Leu Met Met Pro Ala Pro Leu Val Pro  
 145 150 155 160

Ser Val Ser Thr Ser Ser Leu Pro Asn Gly Thr Ala Ser Leu Ile Gln  
 165 170 175



Pro Leu Ser Ile Pro Tyr Ser Ser Ser Thr Leu Pro His Ala Ser Ser  
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Tyr Ser Leu Met Met Gly Gly Phe Gly Gly Ala Ser Ile Gln Lys Ala  
195 200 205

Gln Ser Leu Ile Asp Leu Gly Ser Ser Ser Ser Thr Ser Ser Thr Ala  
210 215 220

Ser Leu Ser Gly Asn Ser Pro Lys Thr Gly Thr Ser Glu Trp Ala Val  
225 230 235 240

Pro Gln Pro Ser Arg Leu Lys Tyr Arg Gln Lys Phe Asn Ser Leu Asp  
245 250 255

Lys Gly Met Ser Gly Tyr Leu Ser Gly Phe Gln Ala Arg Asn Ala Leu  
260 265 270

Leu Gln Ser Asn Leu Ser Gln Thr Gln Leu Ala Thr Ile Trp Thr Leu  
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Ala Asp Ile Asp Gly Asp Gly Gln Leu Lys Ala Glu Glu Phe Ile Leu  
290 295 300

Ala Met His Leu Thr Asp Met Ala Lys Ala Gly Gln Pro Leu Pro Leu  
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325 330 335

Val Asp Ser Val Asn Gly Thr Leu Pro Ser Tyr Gln Lys Thr Gln Glu  
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Glu Glu Pro Gln Lys Lys Leu Pro Val Thr Phe Glu Asp Lys Arg Lys  
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Leu Met Glu Gln Gln Gln Arg Glu Ala Glu Arg Lys Ala Gln Lys Glu  
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Lys Glu Glu Trp Glu Arg Lys Gln Arg Glu Leu Gln Glu Gln Glu Trp  
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Lys Lys Gln Leu Glu Leu Glu Lys Arg Leu Glu Lys Gln Arg Glu Leu  
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Glu Arg Gln Arg Glu Glu Glu Arg Arg Lys Glu Ile Glu Arg Arg Glu  
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Ala Ala Lys Gln Glu Leu Glu Arg Gln Arg Arg Leu Glu Trp Glu Arg  
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Leu Arg Arg Gln Glu Leu Leu Ser Gln Lys Thr Arg Glu Gln Glu Asp  
465 470 475 480

Ile Val Arg Leu Ser Ser Arg Lys Lys Ser Leu His Leu Glu Leu Glu  
485 490 495

Ala Val Asn Gly Lys His Gln Gln Ile Ser Gly Arg Leu Gln Asp Val  
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Gln Cys Asp Leu Glu Ile Met Glu Ile Lys Gln Leu Gln Gln Glu Leu  
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Lys Glu Tyr Gln Asn Lys Leu Ile Tyr Leu Val Pro Glu Lys Gln Leu  
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Leu Asn Glu Arg Ile Lys Asn Met Gln Leu Ser Asn Thr Pro Asp Ser  
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Gly Ile Ser Leu Leu His Lys Lys Ser Ser Glu Lys Glu Glu Leu Cys  
580 585 590

Gln Arg Leu Lys Glu Gln Leu Asp Ala Leu Glu Lys Glu Thr Ala Ser  
595 600 605

Lys Leu Ser Glu Met Asp Ser Phe Asn Asn Gln Leu Lys Glu Leu Arg  
610 615 620

Glu Ser Tyr Asn Thr Gln Gln Leu Ala Leu Glu Gln Leu His Lys Ile  
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Lys Arg Asp Lys Leu Lys Glu Ile Glu Arg Lys Arg Leu Glu Gln Ile  
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Gln Lys Lys Lys Leu Glu Asp Glu Ala Ala Arg Lys Ala Lys Gln Gly  
 660 665 670

Lys Glu Asn Leu Trp Arg Glu Ser Ile Arg Lys Glu Glu Glu Glu Lys  
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Gln Lys Arg Leu Gln Glu Glu Lys Ser Gln Asp Lys Thr Gln Glu Glu  
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Glu Arg Lys Ala Glu Ala Lys Gln Ser Glu Thr Ala Ser Ala Leu Val  
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Asn Tyr Arg Ala Leu Tyr Pro Phe Glu Ala Arg Asn His Asp Glu Met  
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Ser Phe Ser Ser Gly Asp Ile Ile Gln Val Asp Glu Lys Thr Val Gly  
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Glu Pro Gly Trp Leu Tyr Gly Ser Phe Gln Gly Lys Phe Gly Trp Phe  
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Pro Cys Asn Tyr Val Glu Lys Val Leu Ser Ser Glu Lys Ala Leu Ser  
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Pro Lys Lys Ala Leu Leu Pro Pro Thr Val Ser Leu Ser Ala Thr Ser  
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Thr Ser Ser Gln Pro Pro Ala Ser Val Thr Asp Tyr His Asn Val Ser  
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Phe Ser Asn Leu Thr Val Asn Thr Thr Trp Gln Gln Lys Ser Ala Phe  
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Thr Arg Thr Val Ser Pro Gly Ser Val Ser Pro Ile His Gly Gln Gly  
 835 840 845

Gln Ala Val Glu Asn Leu Lys Ala Gln Ala Leu Cys Ser Trp Thr Ala

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Leu	Glu	Gln	Gln	Glu	Asn	Trp	Trp	Phe	Gly	Glu	Val	His	Gly	Gly	Arg
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Gly	Trp	Phe	Pro	Lys	Ser	Tyr	Val	Lys	Leu	Ile	Pro	Gly	Asn	Glu	Val
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Gln	Arg	Gly	Glu	Pro	Glu	Ala	Leu	Tyr	Ala	Ala	Val	Thr	Lys	Lys	Pro
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Thr	Ser	Thr	Ala	Tyr	Pro	Val	Thr	Ser	Thr	Ala	Tyr	Pro	Val	Gly	Glu
	930					935					940				
Asp	Tyr	Ile	Ala	Leu	Tyr	Ser	Tyr	Ser	Ser	Val	Glu	Pro	Gly	Asp	Leu
945					950					955					960
Thr	Phe	Thr	Glu	Gly	Glu	Glu	Ile	Leu	Val	Thr	Gln	Lys	Asp	Gly	Glu
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Trp	Trp	Thr	Gly	Ser	Ile	Gly	Glu	Arg	Thr	Gly	Ile	Phe	Pro	Ser	Asn
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Tyr	Val	Arg	Pro	Lys	Asp	Gln	Glu	Asn	Phe	Gly	Asn	Ala	Ser	Lys	Ser
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Ala	Ser	His	Val	Lys	Leu	Leu	Gly	Pro	Ser	Ser	Glu	Arg	Thr	Met	
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Pro Thr Phe His Ala Val Cys Gln Val Ile Ala Met Tyr Asp Tyr  
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Met Ala Asn Asn Glu Asp Glu Leu Asn Phe Ser Lys Gly Gln Leu  
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Ile Asn Val Met Asn Lys Asp Asp Pro Asp Trp Trp Gln Gly Glu  
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Thr Asn Gly Leu Thr Gly Leu Phe Pro Ser Asn Tyr Val Lys Met  
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Ala Leu Asp Thr Met Gln Pro Thr Glu Arg Lys Arg Gln Gly Tyr  
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Ala Arg Ser Gln Lys Thr Ser Gly Ile Gly Arg Leu Met Val His Val  
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Ile Glu Ala Thr Glu Leu Lys Ala Cys Lys Pro Asn Gly Lys Ser Asn  
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Pro Tyr Cys Glu Val Ser Met Gly Ser Gln Ser Tyr Thr Thr Arg Thr  
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Leu Gln Asp Thr Leu Asn Pro Lys Trp Asn Phe Asn Cys Gln Phe Phe  
100 105 110

Ile Lys Asp Leu Tyr Gln Asp Val Leu Cys Leu Thr Met Phe Asp Arg  
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Ala Lys Ile Arg Thr Glu Gln Glu Ser Lys Gly Pro Thr Thr Arg Arg  
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<212> DNA

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Ser Ala Asn Pro Ala Lys Thr Met Gln Gly Ser Glu Val Val Ser Val  
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Phe Leu Thr Ala Leu Ala Gln Asp Gly Val Ile Asn Glu Glu Ala Leu  
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Ser Val Thr Glu Leu Asp Arg Ile Tyr Gly Gly Leu Thr Ser Lys Val  
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Thr Trp Pro Ser Ser Ser Asn Glu Lys Pro Glu Thr Asp Asn Trp Asp	
850 855 860	
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Thr Trp Ala Ala Gln Pro Ser Leu Thr Val Pro Ser Ala Gly Gln Leu	
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cgg cag aga tca gcc ttt acc cca gcc aca gcc act ggc tcc tcc cca	2688
Arg Gln Arg Ser Ala Phe Thr Pro Ala Thr Ala Thr Gly Ser Ser Pro	
885 890 895	
tct ccc gtc ctg ggc cag ggt gaa aag gtg gaa ggg cta caa gcg caa	2736
Ser Pro Val Leu Gly Gln Gly Glu Lys Val Glu Gly Leu Gln Ala Gln	
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gcc ctg tat ccc tgg aga gcc aaa aaa gac aac cac tta aat ttt aac	2784
Ala Leu Tyr Pro Trp Arg Ala Lys Lys Asp Asn His Leu Asn Phe Asn	
915 920 925	
aaa agt gac gtc atc acc gtt ctg gaa cag caa gac atg tgg tgg ttt	2832
Lys Ser Asp Val Ile Thr Val Leu Glu Gln Gln Asp Met Trp Trp Phe	
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Gly	Glu	Val	Gln	Gly	Gln	Lys	Gly	Trp	Phe	Pro	Lys	Ser	Tyr	Val	Lys		
945					950					955					960		
ctc	att	tca	ggg	ccc	gta	agg	aaa	tcc	aca	agc	atc	gat	act	ggc	cct		2928
Leu	Ile	Ser	Gly	Pro	Val	Arg	Lys	Ser	Thr	Ser	Ile	Asp	Thr	Gly	Pro		
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Thr	Glu	Ser	Pro	Ala	Ser	Leu	Lys	Arg	Val	Ala	Ser	Pro	Ala	Ala	Lys		
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Pro	Ala	Ile	Pro	Gly	Glu	Glu	Phe	Ile	Ala	Met	Tyr	Thr	Tyr	Glu	Ser		
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Ser	Glu	Gln	Gly	Asp	Leu	Thr	Phe	Gln	Gln	Gly	Asp	Val	Ile	Val			
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Val	Thr	Lys	Lys	Asp	Gly	Asp	Trp	Trp	Thr	Gly	Thr	Val	Gly	Asp			
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Lys	Ser	Gly	Val	Phe	Pro	Ser	Asn	Tyr	Val	Arg	Leu	Lys	Asp	Ser			
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Glu	Gly	Ser	Gly	Thr	Ala	Gly	Lys	Thr	Gly	Ser	Leu	Gly	Lys	Lys			
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cct	gaa	att	gcc	cag	gtt	att	gct	tcc	tac	gct	gct	act	ggt	ccc			3249
Pro	Glu	Ile	Ala	Gln	Val	Ile	Ala	Ser	Tyr	Ala	Ala	Thr	Gly	Pro			
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gaa	caa	ctc	acc	ctg	gct	cct	ggg	cag	ctg	att	ctg	atc	cgg	aaa			3294
Glu	Gln	Leu	Thr	Leu	Ala	Pro	Gly	Gln	Leu	Ile	Leu	Ile	Arg	Lys			
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Lys	Asn	Pro	Gly	Gly	Trp	Trp	Glu	Gly	Glu	Leu	Gln	Ala	Arg	Gly			
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Lys	Lys	Arg	Gln	Ile	Gly	Trp	Phe	Pro	Ala	Asn	Tyr	Val	Lys	Leu			
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Leu	Ser	Pro	Gly	Thr	Ser	Lys	Ile	Thr	Pro	Thr	Glu	Leu	Pro	Lys			
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Thr	Ala	Val	Gln	Pro	Ala	Val	Cys	Gln	Val	Ile	Gly	Met	Tyr	Asp			
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Tyr	Thr	Ala	Gln	Asn	Asp	Asp	Glu	Leu	Ala	Phe	Ser	Lys	Gly	Gln			

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Ile Ile Asn Val Leu Asn Lys	Glu Asp Pro Asp Trp	Trp Lys Gly	
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gaa gtc agt ggg caa gtt ggg	ctc ttc cca tcc aat	tat gta aag	3609
Glu Val Ser Gly Gln Val Gly	Leu Phe Pro Ser Asn	Tyr Val Lys	
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ctg acc aca gac atg gac ccc	agc cag caa tgg tgc	tca gac ctg	3654
Leu Thr Thr Asp Met Asp Pro	Ser Gln Gln Trp Cys	Ser Asp Leu	
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cat ctc tta gat atg ctg acc	ccg act gag agg aag	cgg caa ggc	3699
His Leu Leu Asp Met Leu Thr	Pro Thr Glu Arg Lys	Arg Gln Gly	
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tac atc cat gaa ctc att gtc	acg gag gag aac tac	gtg aac gac	3744
Tyr Ile His Glu Leu Ile Val	Thr Glu Glu Asn Tyr	Val Asn Asp	
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ttg cag ctg gtc aca gag atc	ttt cag aaa ccc ctg	acg gag tct	3789
Leu Gln Leu Val Thr Glu Ile	Phe Gln Lys Pro Leu	Thr Glu Ser	
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Glu Leu Leu Thr Glu Lys Glu	Val Ala Met Ile Phe	Val Asn Trp	
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Val Arg Lys Lys Met Ser Gly	Glu Lys Met Pro Val	Lys Met Ile	
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Lys Thr Asp Glu Ala Pro Asp	Phe Lys Glu Phe Val	Lys Arg Leu	
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Ala Met Asp Pro Arg Cys Lys	Gly Met Pro Leu Ser	Ser Phe Ile	
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ctg aag cct atg cag cgt gtc	aca aga tac ccg ctg	atc att aaa	4149
Leu Lys Pro Met Gln Arg Val	Thr Arg Tyr Pro Leu	Ile Ile Lys	
1370	1375	1380	

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Asn Ile Leu Glu Asn Thr Pro Glu Asn His Pro Asp His Ser His	
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Asn Glu Gly Val Arg Glu Lys Glu Asn Ser Asp Arg Leu Glu Trp	
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Ile Gln Ala His Val Gln Cys Glu Gly Leu Ser Glu Gln Leu Val	
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Phe Asn Ser Val Thr Asn Cys Leu Gly Pro Arg Lys Phe Leu His	
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His Ile Ser His Ile Asp Arg Val Tyr Thr Leu Arg Ala Glu Ser	
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Ile Asn Glu Arg Thr Ala Trp Val Gln Lys Ile Lys Ala Ala Ser	
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Glu Leu Tyr Ile Glu Thr Glu Lys Lys Lys Arg Glu Lys Ala Tyr	
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Leu Val Arg Ser Gln Arg Ala Thr Gly Ile Gly Arg Leu Met Val	
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Asn Val Val Glu Gly Ile Glu Leu Lys Pro Cys Arg Ser His Gly	
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Lys Ser Asn Pro Tyr Cys Glu Val Thr Met Gly Ser Gln Cys His	
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Ile Thr Lys Thr Ile Gln Asp Thr Leu Asn Pro Lys Trp Asn Ser	
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Asn Cys Gln Phe Phe Ile Arg Asp Leu Glu Gln Glu Val Leu Cys	
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Ile Thr Val Phe Glu Arg Asp Gln Phe Ser Pro Asp Asp Phe Leu	
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ccg tag	5145
Pro	

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 <212> PRT  
 <213> Mus musculus

<400> 24

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Ile Thr Val Glu Glu Arg Ala Lys His Asp Gln Gln Phe Leu Ser Leu
20 25 30

Lys Pro Ile Ala Gly Phe Ile Thr Gly Asp Gln Ala Arg Asn Phe Phe
35 40 45

Phe Gln Ser Gly Leu Pro Gln Pro Val Leu Ala Gln Ile Trp Ala Leu

50																	
Ala	Asp	Met	Asn	Asn	Asp	Gly	Arg	Met	Asp	Gln	Val	Glu	Phe	Ser	Ile		
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Ala	Met	Lys	Leu	Ile	Lys	Leu	Lys	Leu	Gln	Gly	Tyr	Gln	Leu	Pro	Ser		
			85						90					95			
Thr	Leu	Pro	Pro	Val	Met	Lys	Gln	Gln	Pro	Val	Ala	Ile	Ser	Ser	Ala		
			100					105					110				
Pro	Ala	Phe	Gly	Ile	Gly	Gly	Ile	Ala	Ser	Met	Pro	Pro	Leu	Thr	Ala		
		115					120					125					
Val	Ala	Pro	Val	Pro	Met	Gly	Ser	Ile	Pro	Val	Val	Gly	Met	Ser	Pro		
		130				135						140					
Pro	Leu	Val	Ser	Ser	Val	Pro	Pro	Ala	Ala	Val	Pro	Pro	Leu	Ala	Asn		
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Gly	Ala	Pro	Pro	Val	Ile	Gln	Pro	Leu	Pro	Ala	Phe	Ala	His	Pro	Ala		
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Ala	Thr	Trp	Pro	Lys	Ser	Ser	Ser	Phe	Ser	Arg	Ser	Gly	Pro	Gly	Ser		
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Gln	Leu	Asn	Thr	Lys	Leu	Gln	Lys	Ala	Gln	Ser	Phe	Asp	Val	Ala	Ser		
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Ala	Pro	Pro	Ala	Ala	Glu	Trp	Ala	Val	Pro	Gln	Ser	Ser	Arg	Leu	Lys		
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Tyr	Arg	Gln	Leu	Phe	Asn	Ser	His	Asp	Lys	Thr	Met	Ser	Gly	His	Leu		
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Thr	Gly	Pro	Gln	Ala	Arg	Thr	Ile	Leu	Met	Gln	Ser	Ser	Leu	Pro	Gln		
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Ala	Gln	Leu	Ala	Ser	Ile	Trp	Asn	Leu	Ser	Asp	Ile	Asp	Gln	Asp	Gly		
			260					265					270				
Lys	Leu	Thr	Ala	Glu	Glu	Phe	Ile	Leu	Ala	Met	His	Leu	Ile	Asp	Val		
		275					280					285					

Ala Met Ser Gly Gln Pro Leu Pro Pro Val Leu Pro Pro Glu Tyr Ile  
 290 295 300

Pro Pro Ser Phe Arg Arg Val Arg Ser Gly Ser Gly Met Ser Val Ile  
 305 310 315 320

Ser Ser Ser Ser Val Asp Gln Arg Leu Pro Glu Glu Pro Ser Ser Glu  
 325 330 335

Asp Glu Gln Gln Pro Glu Lys Lys Leu Pro Val Thr Phe Glu Asp Lys  
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Lys Arg Glu Asn Phe Glu Arg Gly Ser Val Glu Leu Glu Lys Arg Arg  
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Gln Ala Leu Leu Glu Gln Gln Arg Lys Glu Gln Glu Arg Leu Ala Gln  
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Leu Glu Arg Ala Glu Gln Glu Arg Lys Glu Arg Glu Arg Gln Glu Gln  
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Glu Ala Lys Arg Gln Leu Glu Leu Glu Lys Gln Leu Glu Lys Gln Arg  
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Glu Leu Glu Arg Gln Arg Glu Glu Glu Arg Arg Lys Glu Ile Glu Arg  
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Arg Glu Ala Ala Lys Arg Glu Leu Glu Arg Gln Arg Gln Leu Glu Trp  
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Glu Arg Asn Arg Arg Gln Glu Leu Leu Asn Gln Arg Asn Lys Glu Gln  
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Glu Gly Thr Val Val Leu Lys Ala Arg Arg Lys Thr Leu Glu Phe Glu  
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Leu Glu Ala Leu Asn Asp Lys Lys His Gln Leu Glu Gly Lys Leu Gln  
 485 490 495

Asp Ile Arg Cys Arg Leu Ala Thr Gln Arg Gln Glu Ile Glu Ser Thr  
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Asn Lys Ser Arg Glu Leu Arg Ile Ala Glu Ile Thr His Leu Gln Gln  
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Gln Leu Gln Glu Ser Gln Gln Met Leu Gly Arg Leu Ile Pro Glu Lys  
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Gln Ile Leu Ser Asp Gln Leu Lys Gln Val Gln Gln Asn Ser Leu His  
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Arg Asp Ser Leu Leu Thr Leu Lys Arg Ala Leu Glu Ala Lys Glu Leu  
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Ala Arg Gln Gln Leu Arg Glu Gln Leu Asp Glu Val Glu Arg Glu Thr  
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Arg Ser Lys Leu Gln Glu Ile Asp Val Phe Asn Asn Gln Leu Lys Glu  
595 600 605

Leu Arg Glu Ile His Ser Lys Gln Gln Leu Gln Lys Gln Arg Ser Leu  
610 615 620

Glu Ala Ala Arg Leu Lys Gln Lys Glu Gln Glu Arg Lys Ser Leu Glu  
625 630 635 640

Leu Glu Lys Gln Lys Glu Asp Ala Gln Arg Arg Val Gln Glu Arg Asp  
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Lys Gln Trp Leu Glu His Val Gln Gln Glu Glu Gln Pro Arg Pro Arg  
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Lys Pro His Glu Glu Asp Arg Leu Lys Arg Glu Asp Ser Val Arg Lys  
675 680 685

Lys Glu Ala Glu Glu Arg Ala Lys Pro Glu Met Gln Asp Lys Gln Ser  
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Arg Leu Phe His Pro His Gln Glu Pro Ala Lys Leu Ala Thr Gln Ala  
705 710 715 720

Pro Trp Ser Thr Thr Glu Lys Gly Pro Leu Thr Ile Ser Ala Gln Glu  
725 730 735



Ser Val Lys Val Val Tyr Tyr Arg Ala Leu Tyr Pro Phe Glu Ser Arg  
740 745 750

Ser His Asp Glu Ile Thr Ile Gln Pro Gly Asp Ile Val Met Val Asp  
755 760 765

Glu Ser Gln Thr Gly Glu Pro Gly Trp Leu Gly Gly Glu Leu Lys Gly  
770 775 780

Lys Thr Gly Trp Phe Pro Ala Asn Tyr Ala Glu Lys Ile Pro Glu Asn  
785 790 795 800

Glu Val Pro Thr Pro Ala Lys Pro Val Thr Asp Leu Thr Ser Ala Pro  
805 810 815

Ala Pro Lys Leu Ala Leu Arg Glu Thr Pro Ala Pro Leu Pro Val Thr  
820 825 830

Ser Ser Glu Pro Ser Thr Thr Pro Asn Asn Trp Ala Asp Phe Ser Ser  
835 840 845

Thr Trp Pro Ser Ser Ser Asn Glu Lys Pro Glu Thr Asp Asn Trp Asp  
850 855 860

Thr Trp Ala Ala Gln Pro Ser Leu Thr Val Pro Ser Ala Gly Gln Leu  
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Arg Gln Arg Ser Ala Phe Thr Pro Ala Thr Ala Thr Gly Ser Ser Pro  
885 890 895

Ser Pro Val Leu Gly Gln Gly Glu Lys Val Glu Gly Leu Gln Ala Gln  
900 905 910

Ala Leu Tyr Pro Trp Arg Ala Lys Lys Asp Asn His Leu Asn Phe Asn  
915 920 925

Lys Ser Asp Val Ile Thr Val Leu Glu Gln Gln Asp Met Trp Trp Phe  
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Gly Glu Val Gln Gly Gln Lys Gly Trp Phe Pro Lys Ser Tyr Val Lys  
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Leu Ile Ser Gly Pro Val Arg Lys Ser Thr Ser Ile Asp Thr Gly Pro

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Ser Glu Gln Gly Asp Leu Thr Phe Gln Gln Gly Asp Val Ile Val					
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Glu Gly Ser Gly Thr Ala Gly Lys Thr Gly Ser Leu Gly Lys Lys					
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Glu Gln Leu Thr Leu Ala Pro Gly Gln Leu Ile Leu Ile Arg Lys					
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Lys Asn Pro Gly Gly Trp Trp Glu Gly Glu Leu Gln Ala Arg Gly					
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Lys Lys Arg Gln Ile Gly Trp Phe Pro Ala Asn Tyr Val Lys Leu					
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Tyr Thr Ala Gln Asn Asp Asp Glu Leu Ala Phe Ser Lys Gly Gln					
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Ile Ile Asn Val Leu Asn Lys Glu Asp Pro Asp Trp Trp Lys Gly					
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Leu Thr Thr Asp Met Asp Pro Ser Gln Gln Trp Cys Ser Asp Leu		
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His Leu Leu Asp Met Leu Thr Pro Thr Glu Arg Lys Arg Gln Gly		
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Tyr Ile His Glu Leu Ile Val Thr Glu Glu Asn Tyr Val Asn Asp		
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Leu Gln Leu Val Thr Glu Ile Phe Gln Lys Pro Leu Thr Glu Ser		
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Glu Leu Leu Thr Glu Lys Glu Val Ala Met Ile Phe Val Asn Trp		
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Lys Glu Leu Ile Met Cys Asn Ile Lys Leu Leu Lys Ala Leu Arg		
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Val Arg Lys Lys Met Ser Gly Glu Lys Met Pro Val Lys Met Ile		
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Gly Asp Ile Leu Ser Ala Gln Leu Pro His Met Gln Pro Tyr Ile		
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Arg Phe Cys Ser Cys Gln Leu Asn Gly Ala Ala Leu Ile Gln Gln		
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Lys Thr Asp Glu Ala Pro Asp Phe Lys Glu Phe Val Lys Arg Leu		
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Ala Met Asp Pro Arg Cys Lys Gly Met Pro Leu Ser Ser Phe Ile		
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Leu Lys Pro Met Gln Arg Val Thr Arg Tyr Pro Leu Ile Ile Lys		
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Asn Ile Leu Glu Asn Thr Pro Glu Asn His Pro Asp His Ser His		
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Asn Glu	Gly Val	Arg Glu	Lys Glu	Asn Ser	Asp Arg	Leu Glu	Trp
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Ile Gln	Ala His	Val Gln	Cys Glu	Gly Leu	Ser Glu	Gln Leu	Val
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Ser Gly	Lys Leu	Tyr Lys	Ala Lys	Ser Asn	Lys Glu	Leu Tyr	Gly
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Leu Val	Lys Leu	Pro Thr	Asp Pro	Ser Gly	Asp Glu	Pro Ile	Phe
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His Ile	Ser His	Ile Asp	Arg Val	Tyr Thr	Leu Arg	Ala Glu	Ser
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Ile Asn	Glu Arg	Thr Ala	Trp Val	Gln Lys	Ile Lys	Ala Ala	Ser
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Lys Ser Asn Pro Tyr Cys Glu Val Thr Met Gly Ser Gln Cys His  
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gga tgg ttc ccc aag tct tat gtc aag ctc att cct ggg aat gaa gta	2736
Gly Trp Phe Pro Lys Ser Tyr Val Lys Leu Ile Pro Gly Asn Glu Val	
900 905 910	
cag cga gga gag cca gaa gct ttg tat gca gct gtg act aag aaa cct	2784
Gln Arg Gly Glu Pro Glu Ala Leu Tyr Ala Ala Val Thr Lys Lys Pro	
915 920 925	
acc tcc aca gcc tat cca gtt acc tcc aca gcc tat cca gtt gga gaa	2832
Thr Ser Thr Ala Tyr Pro Val Thr Ser Thr Ala Tyr Pro Val Gly Glu	
930 935 940	
gac tac att gca ctt tat tca tac tca agt gta gag ccc ggg gat ttg	2880
Asp Tyr Ile Ala Leu Tyr Ser Tyr Ser Ser Val Glu Pro Gly Asp Leu	
945 950 955 960	
act ttc act gaa ggt gaa gaa att cta gtg acc cag aaa gat gga gag	2928
Thr Phe Thr Glu Gly Glu Glu Ile Leu Val Thr Gln Lys Asp Gly Glu	
965 970 975	
tgg tgg aca gga agt att gga gag aga act gga atc ttc ccg tcc aac	2976
Trp Trp Thr Gly Ser Ile Gly Glu Arg Thr Gly Ile Phe Pro Ser Asn	
980 985 990	
tac gtc aga cca aag gat caa gag aat ttt ggg aat gct agc aaa tct	3024
Tyr Val Arg Pro Lys Asp Gln Glu Asn Phe Gly Asn Ala Ser Lys Ser	
995 1000 1005	
gga gca tca aac aaa aaa ccc gag atc gct caa gta act tca gca	3069
Gly Ala Ser Asn Lys Lys Pro Glu Ile Ala Gln Val Thr Ser Ala	
1010 1015 1020	
tat gct gct tca ggg act gag cag ctc agc ctt gcg cca gga cag	3114
Tyr Ala Ala Ser Gly Thr Glu Gln Leu Ser Leu Ala Pro Gly Gln	
1025 1030 1035	

tta ata tta atc tta aag aaa aac aca agc ggg tgg tgg caa gga	3159
Leu Ile Leu Ile Leu Lys Lys Asn Thr Ser Gly Trp Trp Gln Gly	
1040 1045 1050	
gag cta cag gcc aga ggg aag aaa cga cag aag gga tgg ttt cct	3204
Glu Leu Gln Ala Arg Gly Lys Lys Arg Gln Lys Gly Trp Phe Pro	
1055 1060 1065	
gcc agc cat gta aag ctg cta ggt cca agc agt gaa aga acc atg	3249
Ala Ser His Val Lys Leu Leu Gly Pro Ser Ser Glu Arg Thr Met	
1070 1075 1080	
cct act ttt cac gct gta tgt caa gtg att gct atg tat gac tac	3294
Pro Thr Phe His Ala Val Cys Gln Val Ile Ala Met Tyr Asp Tyr	
1085 1090 1095	
atg gcg aat aac gaa gat gag ctc aat ttc tcc aaa gga cag ctg	3339
Met Ala Asn Asn Glu Asp Glu Leu Asn Phe Ser Lys Gly Gln Leu	
1100 1105 1110	
att aat gtt atg aac aaa gat gac cct gac tgg tgg caa gga gaa	3384
Ile Asn Val Met Asn Lys Asp Asp Pro Asp Trp Trp Gln Gly Glu	
1115 1120 1125	
acc aat ggt ctg act ggt ctc ttt cct tca aac tat gtt aag atg	3429
Thr Asn Gly Leu Thr Gly Leu Phe Pro Ser Asn Tyr Val Lys Met	
1130 1135 1140	
aca aca gac tca gat cca agt caa cag tgg tgt gct gac ctc caa	3474
Thr Thr Asp Ser Asp Pro Ser Gln Gln Trp Cys Ala Asp Leu Gln	
1145 1150 1155	
gcc ctg gac aca atg cag cct acg gag agg aag cga cag ggc tac	3519
Ala Leu Asp Thr Met Gln Pro Thr Glu Arg Lys Arg Gln Gly Tyr	
1160 1165 1170	
att cac gag ctc att cag aca gag gag cgg tac atg gac gac gac	3564
Ile His Glu Leu Ile Gln Thr Glu Glu Arg Tyr Met Asp Asp Asp	
1175 1180 1185	
ctg cag ctg gtc atc gag gtc ttc cag aaa cgg atg gct gag gaa	3609
Leu Gln Leu Val Ile Glu Val Phe Gln Lys Arg Met Ala Glu Glu	
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ggc ttc ctc act gaa gca gac atg gct ctg atc ttt gtg aac tgg	3654
Gly Phe Leu Thr Glu Ala Asp Met Ala Leu Ile Phe Val Asn Trp	
1205 1210 1215	
aaa gag ctc atc atg tcc aac acg aag ctg ctg agg gcc ttg cgg	3699
Lys Glu Leu Ile Met Ser Asn Thr Lys Leu Leu Arg Ala Leu Arg	
1220 1225 1230	
gtg agg aag aag act ggg ggt gag aag atg cca gtt cag atg att	3744
Val Arg Lys Lys Thr Gly Gly Glu Lys Met Pro Val Gln Met Ile	
1235 1240 1245	
gga gac atc ctg gcg gca gag ctg tcc cac atg cag gcc tac atc	3789

Gly	Asp	Ile	Leu	Ala	Ala	Glu	Leu	Ser	His	Met	Gln	Ala	Tyr	Ile		
1250						1255					1260					
cgc	ttc	tgc	agc	tgt	cag	ctt	aat	ggg	gca	acc	ctg	tta	cag	cag	3834	
Arg	Phe	Cys	Ser	Cys	Gln	Leu	Asn	Gly	Ala	Thr	Leu	Leu	Gln	Gln		
1265						1270					1275					
aag	aca	gac	gag	gac	acg	gac	ttc	aag	gaa	ttt	cta	aag	aag	ttg	3879	
Lys	Thr	Asp	Glu	Asp	Thr	Asp	Phe	Lys	Glu	Phe	Leu	Lys	Lys	Leu		
1280						1285					1290					
gca	tca	gac	cca	cga	tgc	aaa	ggg	atg	ccc	ctc	tcc	agc	ttc	ctg	3924	
Ala	Ser	Asp	Pro	Arg	Cys	Lys	Gly	Met	Pro	Leu	Ser	Ser	Phe	Leu		
1295						1300					1305					
ctg	aag	ccc	atg	cag	agg	atc	act	cgc	tac	ccg	ctg	ctc	atc	cga	3969	
Leu	Lys	Pro	Met	Gln	Arg	Ile	Thr	Arg	Tyr	Pro	Leu	Leu	Ile	Arg		
1310						1315					1320					
agt	atc	ctg	gag	aac	act	cca	cag	agt	cat	gtt	gac	cac	tcc	tcc	4014	
Ser	Ile	Leu	Glu	Asn	Thr	Pro	Gln	Ser	His	Val	Asp	His	Ser	Ser		
1325						1330					1335					
ctg	aag	ctg	gcc	cta	gaa	cgt	gct	gag	gag	ctg	tgc	tct	cag	gtg	4059	
Leu	Lys	Leu	Ala	Leu	Glu	Arg	Ala	Glu	Glu	Leu	Cys	Ser	Gln	Val		
1340						1345					1350					
aac	gag	gga	gtc	cgg	gag	aag	gaa	aat	tca	gac	cgg	ctg	gag	tgg	4104	
Asn	Glu	Gly	Val	Arg	Glu	Lys	Glu	Asn	Ser	Asp	Arg	Leu	Glu	Trp		
1355						1360					1365					
atc	cag	gca	cac	gtg	cag	tgc	gaa	ggc	ttg	gca	gag	caa	ctt	att	4149	
Ile	Gln	Ala	His	Val	Gln	Cys	Glu	Gly	Leu	Ala	Glu	Gln	Leu	Ile		
1370						1375					1380					
ttc	aac	tcc	ctc	acc	aac	tgc	ctg	ggc	ccc	cgg	aag	ctt	ctg	cac	4194	
Phe	Asn	Ser	Leu	Thr	Asn	Cys	Leu	Gly	Pro	Arg	Lys	Leu	Leu	His		
1385						1390					1395					
agc	ggg	aag	ctg	tac	aag	acc	aag	agc	aat	aag	gag	ctg	cac	gcc	4239	
Ser	Gly	Lys	Leu	Tyr	Lys	Thr	Lys	Ser	Asn	Lys	Glu	Leu	His	Ala		
1400						1405					1410					
ttc	ctc	ttc	aac	gac	ttc	ctg	ctg	ctc	acc	tac	ctg	gtc	agg	cag	4284	
Phe	Leu	Phe	Asn	Asp	Phe	Leu	Leu	Leu	Thr	Tyr	Leu	Val	Arg	Gln		
1415						1420					1425					
ttt	gcc	gcc	gcc	tct	ggc	cac	gag	aag	ctc	ttc	aac	tcc	aag	tcc	4329	
Phe	Ala	Ala	Ala	Ser	Gly	His	Glu	Lys	Leu	Phe	Asn	Ser	Lys	Ser		
1430						1435					1440					
agt	gct	cag	ttc	cgg	atg	tac	aaa	acg	ccc	att	ttc	ctg	aat	gaa	4374	
Ser	Ala	Gln	Phe	Arg	Met	Tyr	Lys	Thr	Pro	Ile	Phe	Leu	Asn	Glu		
1445						1450					1455					
gtg	ttg	gtg	aaa	ctt	ccc	aca	gac	cct	tcc	ggc	gat	gag	ccc	gtc	4419	
Val	Leu	Val	Lys	Leu	Pro	Thr	Asp	Pro	Ser	Gly	Asp	Glu	Pro	Val		

1460	1465	1470	
ttc cac att tcc cac att gat	cgt gtg tac aca ctc	cga aca gac	4464
Phe His Ile Ser His Ile Asp	Arg Val Tyr Thr Leu	Arg Thr Asp	
1475	1480	1485	
aac atc aac gag agg acg gcc	tgg gtc cag aag atc	aag ggt gcc	4509
Asn Ile Asn Glu Arg Thr Ala	Trp Val Gln Lys Ile	Lys Gly Ala	
1490	1495	1500	
tca gag cag tac atc gac act	gag aag aag aaa cgg	gaa aag gct	4554
Ser Glu Gln Tyr Ile Asp Thr	Glu Lys Lys Lys Arg	Glu Lys Ala	
1505	1510	1515	
tac caa gcc cgt tct caa aag	act tca ggt att ggg	cgt ctg atg	4599
Tyr Gln Ala Arg Ser Gln Lys	Thr Ser Gly Ile Gly	Arg Leu Met	
1520	1525	1530	
gtg cat gtc att gaa gct aca	gaa tta aaa gcc tgc	aaa cca aac	4644
Val His Val Ile Glu Ala Thr	Glu Leu Lys Ala Cys	Lys Pro Asn	
1535	1540	1545	
ggg aaa agt aat cca tac tgt	gaa gtc agc atg ggc	tcc caa agc	4689
Gly Lys Ser Asn Pro Tyr Cys	Glu Val Ser Met Gly	Ser Gln Ser	
1550	1555	1560	
tat acc acc agg acc ctg cag	gac aca cta aac ccc	aag tgg aac	4734
Tyr Thr Thr Arg Thr Leu Gln	Asp Thr Leu Asn Pro	Lys Trp Asn	
1565	1570	1575	
ttc aac tgc cag ttc ttc atc	aag gat ctt tac cag	gac gtt ctg	4779
Phe Asn Cys Gln Phe Phe Ile	Lys Asp Leu Tyr Gln	Asp Val Leu	
1580	1585	1590	
tgt ctc act atg ttt gac aga	gac cag ttt tct cca	gat gac ttc	4824
Cys Leu Thr Met Phe Asp Arg	Asp Gln Phe Ser Pro	Asp Asp Phe	
1595	1600	1605	
ttg ggt cgt act gaa gtt cca	gtg gca aaa atc cga	aca gaa cag	4869
Leu Gly Arg Thr Glu Val Pro	Val Ala Lys Ile Arg	Thr Glu Gln	
1610	1615	1620	
gaa agc aaa ggc ccc acc acc	cgc cga cta cta ctg	cac gaa gtc	4914
Glu Ser Lys Gly Pro Thr Thr	Arg Arg Leu Leu Leu	His Glu Val	
1625	1630	1635	
ccc act gga gaa gtc tgg gtc	cgc ttt gac ctg caa	ctt ttt gaa	4959
Pro Thr Gly Glu Val Trp Val	Arg Phe Asp Leu Gln	Leu Phe Glu	
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Gln Lys Thr Leu Leu			
1655			

<210> 27  
 <211> 1658



<212> PRT

<213> Mus musculus

<400> 27

Met Ala Gln Phe Pro Thr Ala Met Asn Gly Gly Pro Asn Met Trp Ala  
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20 25 30

Lys Pro Ser Gly Gly Tyr Ile Thr Gly Asp Gln Ala Arg Thr Phe Phe  
35 40 45

Leu Gln Ser Gly Leu Pro Ala Pro Val Leu Ala Glu Ile Trp Ala Leu  
50 55 60

Ser Asp Leu Asn Lys Asp Gly Lys Met Asp Gln Gln Glu Phe Ser Ile  
65 70 75 80

Ala Met Lys Leu Ile Lys Leu Lys Leu Gln Gly Gln Gln Leu Pro Val  
85 90 95

Val Leu Pro Pro Ile Met Lys Gln Pro Pro Met Phe Ser Pro Leu Ile  
100 105 110

Ser Ala Arg Phe Gly Met Gly Ser Met Pro Asn Leu Ser Ile His Gln  
115 120 125

Pro Leu Pro Pro Val Ala Pro Ile Ala Thr Pro Leu Ser Ser Ala Thr  
130 135 140

Ser Gly Thr Ser Ile Pro Pro Leu Met Met Pro Ala Pro Leu Val Pro  
145 150 155 160

Ser Val Ser Thr Ser Ser Leu Pro Asn Gly Thr Ala Ser Leu Ile Gln  
165 170 175

Pro Leu Ser Ile Pro Tyr Ser Ser Ser Thr Leu Pro His Ala Ser Ser  
180 185 190

Tyr Ser Leu Met Met Gly Gly Phe Gly Gly Ala Ser Ile Gln Lys Ala  
195 200 205

Gln Ser Leu Ile Asp Leu Gly Ser Ser Ser Ser Thr Ser Ser Thr Ala  
 210 215 220

Ser Leu Ser Gly Asn Ser Pro Lys Thr Gly Thr Ser Glu Trp Ala Val  
 225 230 235 240

Pro Gln Pro Ser Arg Leu Lys Tyr Arg Gln Lys Phe Asn Ser Leu Asp  
 245 250 255

Lys Gly Met Ser Gly Tyr Leu Ser Gly Phe Gln Ala Arg Asn Ala Leu  
 260 265 270

Leu Gln Ser Asn Leu Ser Gln Thr Gln Leu Ala Thr Ile Trp Thr Leu  
 275 280 285

Ala Asp Ile Asp Gly Asp Gly Gln Leu Lys Ala Glu Glu Phe Ile Leu  
 290 295 300

Ala Met His Leu Thr Asp Met Ala Lys Ala Gly Gln Pro Leu Pro Leu  
 305 310 315 320

Thr Leu Pro Pro Glu Leu Val Pro Pro Ser Phe Arg Gly Gly Lys Gln  
 325 330 335

Val Asp Ser Val Asn Gly Thr Leu Pro Ser Tyr Gln Lys Thr Gln Glu  
 340 345 350

Glu Glu Pro Gln Lys Lys Leu Pro Val Thr Phe Glu Asp Lys Arg Lys  
 355 360 365

Ala Asn Tyr Glu Arg Gly Asn Met Glu Leu Glu Lys Arg Arg Gln Val  
 370 375 380

Leu Met Glu Gln Gln Gln Arg Glu Ala Glu Arg Lys Ala Gln Lys Glu  
 385 390 395 400

Lys Glu Glu Trp Glu Arg Lys Gln Arg Glu Leu Gln Glu Gln Glu Trp  
 405 410 415

Lys Lys Gln Leu Glu Leu Glu Lys Arg Leu Glu Lys Gln Arg Glu Leu  
 420 425 430

Glu Arg Gln Arg Glu Glu Glu Arg Arg Lys Glu Ile Glu Arg Arg Glu

435	440	445
Ala Ala Lys Gln Glu Leu Glu Arg Gln Arg Arg Leu Glu Trp Glu Arg		
450	455	460
Leu Arg Arg Gln Glu Leu Leu Ser Gln Lys Thr Arg Glu Gln Glu Asp		
465	470	475 480
Ile Val Arg Leu Ser Ser Arg Lys Lys Ser Leu His Leu Glu Leu Glu		
485	490	495
Ala Val Asn Gly Lys His Gln Gln Ile Ser Gly Arg Leu Gln Asp Val		
500	505	510
Gln Ile Arg Lys Gln Thr Gln Lys Thr Glu Leu Glu Val Leu Asp Lys		
515	520	525
Gln Cys Asp Leu Glu Ile Met Glu Ile Lys Gln Leu Gln Gln Glu Leu		
530	535	540
Lys Glu Tyr Gln Asn Lys Leu Ile Tyr Leu Val Pro Glu Lys Gln Leu		
545	550	555 560
Leu Asn Glu Arg Ile Lys Asn Met Gln Leu Ser Asn Thr Pro Asp Ser		
565	570	575
Gly Ile Ser Leu Leu His Lys Lys Ser Ser Glu Lys Glu Glu Leu Cys		
580	585	590
Gln Arg Leu Lys Glu Gln Leu Asp Ala Leu Glu Lys Glu Thr Ala Ser		
595	600	605
Lys Leu Ser Glu Met Asp Ser Phe Asn Asn Gln Leu Lys Glu Leu Arg		
610	615	620
Glu Ser Tyr Asn Thr Gln Gln Leu Ala Leu Glu Gln Leu His Lys Ile		
625	630	635 640
Lys Arg Asp Lys Leu Lys Glu Ile Glu Arg Lys Arg Leu Glu Gln Ile		
645	650	655
Gln Lys Lys Lys Leu Glu Asp Glu Ala Ala Arg Lys Ala Lys Gln Gly		
660	665	670

Lys Glu Asn Leu Trp Arg Glu Ser Ile Arg Lys Glu Glu Glu Glu Lys  
675 680 685

Gln Lys Arg Leu Gln Glu Glu Lys Ser Gln Asp Lys Thr Gln Glu Glu  
690 695 700

Glu Arg Lys Ala Glu Ala Lys Gln Ser Glu Thr Ala Ser Ala Leu Val  
705 710 715 720

Asn Tyr Arg Ala Leu Tyr Pro Phe Glu Ala Arg Asn His Asp Glu Met  
725 730 735

Ser Phe Ser Ser Gly Asp Ile Ile Gln Val Asp Glu Lys Thr Val Gly  
740 745 750

Glu Pro Gly Trp Leu Tyr Gly Ser Phe Gln Gly Lys Phe Gly Trp Phe  
755 760 765

Pro Cys Asn Tyr Val Glu Lys Val Leu Ser Ser Glu Lys Ala Leu Ser  
770 775 780

Pro Lys Lys Ala Leu Leu Pro Pro Thr Val Ser Leu Ser Ala Thr Ser  
785 790 795 800

Thr Ser Ser Gln Pro Pro Ala Ser Val Thr Asp Tyr His Asn Val Ser  
805 810 815

Phe Ser Asn Leu Thr Val Asn Thr Thr Trp Gln Gln Lys Ser Ala Phe  
820 825 830

Thr Arg Thr Val Ser Pro Gly Ser Val Ser Pro Ile His Gly Gln Gly  
835 840 845

Gln Ala Val Glu Asn Leu Lys Ala Gln Ala Leu Cys Ser Trp Thr Ala  
850 855 860

Lys Lys Glu Asn His Leu Asn Phe Ser Lys His Asp Val Ile Thr Val  
865 870 875 880

Leu Glu Gln Gln Glu Asn Trp Trp Phe Gly Glu Val His Gly Gly Arg  
885 890 895

Gly Trp Phe Pro Lys Ser Tyr Val Lys Leu Ile Pro Gly Asn Glu Val  
900 905 910

Gln Arg Gly Glu Pro Glu Ala Leu Tyr Ala Ala Val Thr Lys Lys Pro  
915 920 925

Thr Ser Thr Ala Tyr Pro Val Thr Ser Thr Ala Tyr Pro Val Gly Glu  
930 935 940

Asp Tyr Ile Ala Leu Tyr Ser Tyr Ser Ser Val Glu Pro Gly Asp Leu  
945 950 955 960

Thr Phe Thr Glu Gly Glu Glu Ile Leu Val Thr Gln Lys Asp Gly Glu  
965 970 975

Trp Trp Thr Gly Ser Ile Gly Glu Arg Thr Gly Ile Phe Pro Ser Asn  
980 985 990

Tyr Val Arg Pro Lys Asp Gln Glu Asn Phe Gly Asn Ala Ser Lys Ser  
995 1000 1005

Gly Ala Ser Asn Lys Lys Pro Glu Ile Ala Gln Val Thr Ser Ala  
1010 1015 1020

Tyr Ala Ala Ser Gly Thr Glu Gln Leu Ser Leu Ala Pro Gly Gln  
1025 1030 1035

Leu Ile Leu Ile Leu Lys Lys Asn Thr Ser Gly Trp Trp Gln Gly  
1040 1045 1050

Glu Leu Gln Ala Arg Gly Lys Lys Arg Gln Lys Gly Trp Phe Pro  
1055 1060 1065

Ala Ser His Val Lys Leu Leu Gly Pro Ser Ser Glu Arg Thr Met  
1070 1075 1080

Pro Thr Phe His Ala Val Cys Gln Val Ile Ala Met Tyr Asp Tyr  
1085 1090 1095

Met Ala Asn Asn Glu Asp Glu Leu Asn Phe Ser Lys Gly Gln Leu  
1100 1105 1110

Ile	Asn	Val	Met	Asn	Lys	Asp	Asp	Pro	Asp	Trp	Trp	Gln	Gly	Glu
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Thr	Asn	Gly	Leu	Thr	Gly	Leu	Phe	Pro	Ser	Asn	Tyr	Val	Lys	Met
1130						1135					1140			
Thr	Thr	Asp	Ser	Asp	Pro	Ser	Gln	Gln	Trp	Cys	Ala	Asp	Leu	Gln
1145						1150					1155			
Ala	Leu	Asp	Thr	Met	Gln	Pro	Thr	Glu	Arg	Lys	Arg	Gln	Gly	Tyr
1160						1165					1170			
Ile	His	Glu	Leu	Ile	Gln	Thr	Glu	Glu	Arg	Tyr	Met	Asp	Asp	Asp
1175						1180					1185			
Leu	Gln	Leu	Val	Ile	Glu	Val	Phe	Gln	Lys	Arg	Met	Ala	Glu	Glu
1190						1195					1200			
Gly	Phe	Leu	Thr	Glu	Ala	Asp	Met	Ala	Leu	Ile	Phe	Val	Asn	Trp
1205						1210					1215			
Lys	Glu	Leu	Ile	Met	Ser	Asn	Thr	Lys	Leu	Leu	Arg	Ala	Leu	Arg
1220						1225					1230			
Val	Arg	Lys	Lys	Thr	Gly	Gly	Glu	Lys	Met	Pro	Val	Gln	Met	Ile
1235						1240					1245			
Gly	Asp	Ile	Leu	Ala	Ala	Glu	Leu	Ser	His	Met	Gln	Ala	Tyr	Ile
1250						1255					1260			
Arg	Phe	Cys	Ser	Cys	Gln	Leu	Asn	Gly	Ala	Thr	Leu	Leu	Gln	Gln
1265						1270					1275			
Lys	Thr	Asp	Glu	Asp	Thr	Asp	Phe	Lys	Glu	Phe	Leu	Lys	Lys	Leu
1280						1285					1290			
Ala	Ser	Asp	Pro	Arg	Cys	Lys	Gly	Met	Pro	Leu	Ser	Ser	Phe	Leu
1295						1300					1305			
Leu	Lys	Pro	Met	Gln	Arg	Ile	Thr	Arg	Tyr	Pro	Leu	Leu	Ile	Arg
1310						1315					1320			
Ser	Ile	Leu	Glu	Asn	Thr	Pro	Gln	Ser	His	Val	Asp	His	Ser	Ser

1325		1330		1335
Leu Lys	Leu Ala	Leu Glu	Arg Ala	Glu Glu
1340			1345	1350
				Leu Cys
				Ser Gln Val
Asn Glu	Gly Val	Arg Glu	Lys Glu	Asn Ser
1355			1360	1365
				Arg Leu
				Glu Trp
Ile Gln	Ala His	Val Gln	Cys Glu	Gly Leu
1370			1375	1380
				Ala Glu
				Gln Leu
				Ile
Phe Asn	Ser Leu	Thr Asn	Cys Leu	Gly Pro
1385			1390	1395
				Arg Lys
				Leu Leu
				His
Ser Gly	Lys Leu	Tyr Lys	Thr Lys	Ser Asn
1400			1405	1410
				Lys Glu
				Leu His
				Ala
Phe Leu	Phe Asn	Asp Phe	Leu Leu	Thr Tyr
1415			1420	1425
				Leu Val
				Arg Gln
Phe Ala	Ala Ala	Ser Gly	His Glu	Lys Leu
1430			1435	1440
				Phe Asn
				Ser Lys
				Ser
Ser Ala	Gln Phe	Arg Met	Tyr Lys	Thr Pro
1445			1450	1455
				Ile Phe
				Leu Asn
				Glu
Val Leu	Val Lys	Leu Pro	Thr Asp	Pro Ser
1460			1465	1470
				Gly Asp
				Glu Pro
				Val
Phe His	Ile Ser	His Ile	Asp Arg	Val Tyr
1475			1480	1485
				Thr Leu
				Arg Thr
				Asp
Asn Ile	Asn Glu	Arg Thr	Ala Trp	Val Gln
1490			1495	1500
				Lys Ile
				Lys Gly
				Ala
Ser Glu	Gln Tyr	Ile Asp	Thr Glu	Lys Lys
1505			1510	1515
				Lys Arg
				Glu Lys
				Ala
Tyr Gln	Ala Arg	Ser Gln	Lys Thr	Ser Gly
1520			1525	1530
				Ile Gly
				Arg Leu
				Met
Val His	Val Ile	Glu Ala	Thr Glu	Leu Lys
1535			1540	1545
				Ala Cys
				Lys Pro
				Asn

Gly Lys Ser Asn Pro Tyr Cys Glu Val Ser Met Gly Ser Gln Ser  
 1550 1555 1560

Tyr Thr Thr Arg Thr Leu Gln Asp Thr Leu Asn Pro Lys Trp Asn  
 1565 1570 1575

Phe Asn Cys Gln Phe Phe Ile Lys Asp Leu Tyr Gln Asp Val Leu  
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Cys Leu Thr Met Phe Asp Arg Asp Gln Phe Ser Pro Asp Asp Phe  
 1595 1600 1605

Leu Gly Arg Thr Glu Val Pro Val Ala Lys Ile Arg Thr Glu Gln  
 1610 1615 1620

Glu Ser Lys Gly Pro Thr Thr Arg Arg Leu Leu Leu His Glu Val  
 1625 1630 1635

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Gln Lys Thr Leu Leu  
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 <212> DNA  
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30

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<220>  
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<400> 29  
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21



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 <400> 30  
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<210> 32  
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<210> 33  
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 <223> Description of Artificial Sequence: Peptide  
  
 <400> 33

Met Ala Gln Phe Pro Thr Pro Phe Gly Gly Ser Leu Asp Val Trp Ala  
 1 5 10 15

Ile Thr Val Glu Glu  
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<210> 34  
 <211> 1270

<212> PRT

<213> Xenopus laevis

<400> 34

Met Ala Gln Phe Gly Thr Pro Phe Gly Gly Asn Leu Asp Ile Trp Ala  
1 5 10 15

Ile Thr Val Glu Glu Arg Ala Lys His Asp Gln Gln Phe His Gly Leu  
20 25 30

Lys Pro Thr Ala Gly Tyr Ile Thr Gly Asp Gln Ala Arg Asn Phe Phe  
35 40 45

Leu Gln Ser Gly Leu Pro Gln Pro Val Leu Ala Gln Ile Trp Ala Leu  
50 55 60

Ala Asp Met Asn Asn Asp Gly Arg Met Asp Gln Leu Glu Phe Ser Ile  
65 70 75 80

Ala Met Lys Leu Ile Lys Leu Lys Leu Gln Gly Tyr Pro Leu Pro Ser  
85 90 95

Ile Leu Pro Ser Asn Met Leu Lys Gln Pro Val Ala Met Pro Ala Ala  
100 105 110

Ala Val Ala Gly Phe Gly Met Ser Gly Ile Val Gly Ile Pro Pro Leu  
115 120 125

Ala Ala Val Ala Pro Val Pro Met Pro Ser Ile Pro Val Val Gly Met  
130 135 140

Ser Pro Pro Leu Val Ser Ser Val Pro Thr Val Pro Pro Leu Ser Asn  
145 150 155 160

Gly Ala Pro Ala Val Ile Gln Ser His Pro Ala Phe Ala His Ser Ala  
165 170 175

Thr Leu Pro Lys Ser Ser Ser Phe Gly Arg Ser Val Ala Gly Ser Gln  
180 185 190

Ile Asn Thr Lys Leu Gln Lys Ala Gln Ser Phe Asp Val Pro Ala Pro  
195 200 205

Pro Leu Val Val Glu Trp Ala Val Pro Ser Ser Ser Arg Leu Lys Tyr  
 210 215 220

Arg Gln Leu Phe Asn Ser Gln Asp Lys Thr Met Ser Gly Asn Leu Thr  
 225 230 235 240

Gly Pro Gln Ala Arg Thr Ile Leu Met Gln Ser Ser Leu Pro Gln Ser  
 245 250 255

Gln Leu Ala Thr Ile Trp Asn Leu Ser Asp Ile Asp Gln Asp Gly Lys  
 260 265 270

Leu Thr Ala Glu Glu Phe Ile Leu Ala Met His Leu Ile Asp Val Ala  
 275 280 285

Met Ser Gly Gln Pro Leu Pro Pro Ile Leu Pro Pro Glu Tyr Ile Pro  
 290 295 300

Pro Ser Phe Arg Arg Val Arg Ser Gly Ser Gly Leu Ser Ile Met Ser  
 305 310 315 320

Ser Val Ser Val Asp Gln Arg Leu Pro Glu Glu Pro Glu Glu Glu Glu  
 325 330 335

Pro Gln Asn Ala Asp Lys Lys Leu Pro Val Thr Phe Glu Asp Lys Lys  
 340 345 350

Arg Glu Asn Phe Glu Arg Gly Asn Leu Glu Leu Glu Lys Arg Arg Gln  
 355 360 365

Ala Leu Leu Glu Gln Gln Arg Lys Glu Gln Glu Arg Leu Ala Gln Leu  
 370 375 380

Glu Arg Ala Glu Gln Glu Arg Lys Glu Arg Glu Arg Gln Asp Gln Glu  
 385 390 395 400

Arg Lys Arg Gln Gln Asp Leu Glu Lys Gln Leu Glu Lys Gln Arg Glu  
 405 410 415

Leu Glu Arg Gln Arg Glu Glu Glu Arg Arg Lys Glu Ile Glu Arg Arg  
 420 425 430

Glu Ala Ala Lys Arg Glu Leu Glu Arg Gln Arg Gln Leu Glu Trp Glu

435		440		445
Arg Asn Arg Arg Gln Glu Leu Leu Asn Gln Arg Asn Arg Glu Gln Glu				
450		455		460
Asp Ile Val Val Leu Lys Ala Lys Lys Lys Thr Leu Glu Phe Glu Leu				
465		470		475 480
Glu Ala Leu Asn Asp Lys Lys His Gln Leu Glu Gly Lys Leu Gln Asp				
		485		490 495
Ile Arg Cys Arg Leu Thr Thr Gln Arg His Glu Ile Glu Ser Thr Asn				
		500		505 510
Lys Ser Arg Glu Leu Arg Ile Ala Glu Ile Thr His Leu Gln Gln Gln				
		515		520 525
Leu Gln Glu Ser Gln Gln Leu Leu Gly Lys Met Ile Pro Glu Lys Gln				
		530		535 540
Ser Leu Ile Asp Gln Leu Lys Gln Val Gln Gln Asn Ser Leu His Arg				
		545		550 555 560
Asp Ser Leu Leu Thr Leu Lys Arg Ala Leu Glu Thr Lys Glu Ile Gly				
		565		570 575
Arg Gln Gln Leu Arg Asp Gln Leu Asp Glu Val Glu Lys Glu Thr Arg				
		580		585 590
Ala Lys Leu Gln Glu Ile Asp Val Phe Asn Asn Gln Leu Lys Glu Leu				
		595		600 605
Arg Glu Leu Tyr Asn Lys Gln Gln Phe Gln Lys Gln Gln Asp Phe Glu				
		610		615 620
Thr Glu Lys Ile Lys Gln Lys Glu Leu Glu Arg Lys Thr Ser Glu Leu				
		625		630 635 640
Asp Lys Leu Lys Glu Glu Asp Lys Arg Arg Met Leu Glu Gln Asp Lys				
		645		650 655
Leu Trp Gln Asp Arg Val Lys Gln Glu Glu Glu Arg Tyr Lys Phe Gln				
		660		665 670

Asp Glu Glu Lys Glu Lys Arg Glu Glu Ser Val Gln Lys Cys Glu Val  
 675 680 685

Glu Lys Lys Pro Glu Ile Gln Glu Lys Pro Asn Lys Pro Phe His Gln  
 690 695 700

Pro Pro Glu Pro Gly Lys Leu Gly Gly Gln Ile Pro Trp Met Asn Thr  
 705 710 715 720

Glu Lys Ala Pro Leu Thr Ile Asn Gln Gly Asp Val Lys Val Val Tyr  
 725 730 735

Tyr Arg Ala Leu Tyr Pro Phe Asp Ala Arg Ser His Asp Glu Ile Thr  
 740 745 750

Ile Glu Pro Gly Asp Ile Ile Met Val Asp Glu Ser Gln Thr Gly Glu  
 755 760 765

Pro Gly Trp Leu Gly Gly Glu Leu Lys Gly Lys Thr Gly Trp Phe Pro  
 770 775 780

Ala Asn Tyr Ala Glu Arg Met Pro Glu Ser Glu Phe Pro Ser Thr Thr  
 785 790 795 800

Lys Pro Ala Ala Glu Thr Thr Ala Lys Pro Thr Val His Val Ala Pro  
 805 810 815

Ser Pro Val Ala Pro Ala Ala Phe Thr Asn Thr Ser Thr Asn Ser Asn  
 820 825 830

Asn Trp Ala Asp Phe Ser Ser Thr Trp Pro Thr Asn Asn Thr Asp Lys  
 835 840 845

Val Glu Ser Asp Asn Trp Asp Thr Trp Ala Ala Gln Pro Ser Leu Thr  
 850 855 860

Val Pro Ser Ala Gly Gln His Arg Gln Arg Ser Ala Phe Thr Pro Ala  
 865 870 875 880

Thr Val Thr Gly Ser Ser Pro Ser Pro Val Leu Gly Gln Gly Glu Lys  
 885 890 895

Val Glu Gly Leu Gln Ala Gln Ala Leu Tyr Pro Trp Arg Ala Lys Lys  
 900 905 910

Asp Asn His Leu Asn Phe Asn Lys Asn Asp Val Ile Thr Val Leu Glu  
 915 920 925

Gln Gln Asp Met Trp Trp Phe Gly Glu Val Gln Gly Gln Lys Gly Trp  
 930 935 940

Phe Pro Lys Ser Tyr Val Lys Leu Ile Ser Gly Pro Leu Arg Lys Ser  
 945 950 955 960

Thr Ser Ile Asp Ser Thr Ser Ser Glu Ser Pro Ala Ser Leu Lys Arg  
 965 970 975

Val Ser Ser Pro Ala Phe Lys Pro Ala Ile Gln Gly Glu Glu Tyr Ile  
 980 985 990

Ser Met Tyr Thr Tyr Glu Ser Asn Glu Gln Gly Asp Leu Thr Phe Gln  
 995 1000 1005

Gln Gly Asp Leu Ile Val Val Ile Lys Lys Asp Gly Asp Trp Trp  
 1010 1015 1020

Thr Gly Thr Val Gly Glu Lys Thr Gly Val Phe Pro Ser Asn Tyr  
 1025 1030 1035

Val Arg Pro Lys Asp Ser Glu Ala Ala Gly Ser Gly Gly Lys Thr  
 1040 1045 1050

Gly Ser Leu Gly Lys Lys Pro Glu Ile Ala Gln Val Ile Ala Ser  
 1055 1060 1065

Tyr Ala Ala Thr Ala Pro Glu Gln Leu Thr Leu Ala Pro Gly Gln  
 1070 1075 1080

Leu Ile Leu Ile Arg Lys Lys Asn Pro Gly Gly Trp Trp Glu Gly  
 1085 1090 1095

Glu Leu Gln Ala Arg Gly Lys Lys Arg Gln Ile Gly Trp Phe Pro  
 1100 1105 1110

Ala Asn Tyr Val Lys Leu Leu Ser Pro Gly Thr Asn Lys Ser Thr  
 1115 1120 1125

Pro Thr Glu Pro Pro Lys Pro Thr Ser Leu Pro Pro Thr Cys Gln  
 1130 1135 1140

Val Ile Gly Met Tyr Asp Tyr Ile Ala Gln Asn Asp Asp Glu Leu  
 1145 1150 1155

Ala Phe Ser Lys Gly Gln Val Ile Asn Val Leu Asn Lys Glu Asp  
 1160 1165 1170

Pro Asp Trp Trp Lys Gly Glu Leu Asn Gly His Val Gly Leu Phe  
 1175 1180 1185

Pro Ser Asn Tyr Val Lys Leu Thr Thr Asp Met Asp Pro Ser Gln  
 1190 1195 1200

Gln Phe Arg Leu Gly Val Lys Pro Ala Gly Gly Ile Pro Ala Thr  
 1205 1210 1215

Gly Asp Arg Pro Phe Ile Leu Phe Pro Phe Arg Asp Gly Pro Ser  
 1220 1225 1230

Leu Leu Pro Asn Ala Phe Gln Ala Pro Pro Leu Ser Val Val Met  
 1235 1240 1245

Ile Lys Phe Arg Cys Phe Thr Ala Pro Arg Phe Cys Pro Asp Met  
 1250 1255 1260

Asn Val Lys Tyr Ile Asn Ile  
 1265 1270

<210> 35  
 <211> 1094  
 <212> PRT  
 <213> Drosophila melanogaster

<400> 35

Met Asn Ser Ala Val Asp Ala Trp Ala Val Thr Pro Arg Glu Arg Leu  
 1 5 10 15

Lys Tyr Gln Glu Gln Phe Arg Ala Leu Gln Pro Gln Ala Gly Phe Val  
 20 25 30

Thr Gly Ala Gln Ala Lys Gly Phe Phe Leu Gln Ser Gln Leu Pro Pro  
 35 40 45  
 Leu Ile Leu Gly Gln Ile Trp Ala Leu Ala Asp Thr Asp Ser Asp Gly  
 50 55 60  
 Lys Met Asn Ile Asn Glu Phe Ser Ile Ala Cys Lys Leu Ile Asn Leu  
 65 70 75 80  
 Lys Leu Arg Gly Met Asp Val Pro Lys Val Leu Pro Pro Ser Leu Leu  
 85 90 95  
 Ser Ser Leu Thr Gly Asp Val Pro Ser Met Thr Pro Arg Gly Ser Thr  
 100 105 110  
 Ser Ser Leu Ser Pro Leu Asp Pro Leu Lys Gly Ile Val Pro Ala Val  
 115 120 125  
 Ala Pro Val Val Pro Val Val Ala Pro Pro Val Ala Val Ala Thr Val  
 130 135 140  
 Ile Ser Pro Pro Gly Val Ser Val Pro Ser Gly Pro Thr Pro Pro Thr  
 145 150 155 160  
 Ser Asn Pro Pro Ser Arg His Thr Ser Ile Ser Glu Arg Ala Pro Ser  
 165 170 175  
 Ile Glu Ser Val Asn Gln Gly Glu Trp Ala Val Gln Ala Ala Gln Lys  
 180 185 190  
 Arg Lys Tyr Thr Gln Val Phe Asn Ala Asn Asp Arg Thr Arg Ser Gly  
 195 200 205  
 Tyr Leu Thr Gly Ser Gln Ala Arg Gly Val Leu Val Gln Ser Lys Leu  
 210 215 220  
 Pro Gln Val Thr Leu Ala Gln Ile Trp Thr Leu Ser Asp Ile Asp Gly  
 225 230 235 240  
 Asp Gly Arg Leu Asn Cys Asp Glu Phe Ile Leu Ala Met Phe Leu Cys  
 245 250 255



Glu Lys Ala Met Ala Gly Glu Lys Ile Pro Val Thr Leu Pro Gln Glu  
 260 265 270

Trp Val Pro Pro Asn Leu Arg Lys Ile Lys Ser Arg Pro Gly Ser Val  
 275 280 285

Ser Gly Val Val Ser Arg Pro Gly Ser Gln Pro Ala Ser Arg His Ala  
 290 295 300

Ser Val Ser Ser Gln Ser Gly Val Gly Val Val Asp Ala Asp Pro Thr  
 305 310 315 320

Ala Gly Leu Pro Gly Gln Thr Ser Phe Glu Asp Lys Arg Lys Glu Asn  
 325 330 335

Tyr Val Lys Gly Gln Ala Glu Leu Asp Arg Arg Arg Lys Ile Met Glu  
 340 345 350

Asp Gln Gln Arg Lys Glu Arg Glu Glu Arg Glu Arg Lys Glu Arg Glu  
 355 360 365

Glu Ala Asp Lys Arg Glu Lys Ala Arg Leu Glu Ala Glu Arg Lys Gln  
 370 375 380

Gln Glu Glu Leu Glu Arg Gln Leu Gln Arg Gln Arg Glu Ile Glu Met  
 385 390 395 400

Glu Lys Glu Glu Gln Arg Lys Arg Glu Leu Glu Ala Lys Glu Ala Ala  
 405 410 415

Arg Lys Glu Leu Glu Lys Gln Arg Gln Gln Glu Trp Glu Gln Ala Arg  
 420 425 430

Ile Ala Glu Met Asn Ala Gln Lys Glu Arg Glu Gln Glu Arg Val Leu  
 435 440 445

Lys Gln Lys Ala His Asn Thr Gln Leu Asn Val Glu Leu Ser Thr Leu  
 450 455 460

Asn Glu Lys Ile Lys Glu Leu Ser Gln Arg Ile Cys Asp Thr Arg Ala  
 465 470 475 480

Gly Val Thr Asn Val Lys Thr Val Ile Asp Gly Met Arg Thr Gln Arg  
 485 490 495

Asp Thr Ser Met Ser Glu Met Ser Gln Leu Lys Ala Arg Ile Lys Glu  
 500 505 510

Gln Asn Ala Lys Leu Leu Gln Leu Thr Gln Glu Arg Ala Lys Trp Glu  
 515 520 525

Ala Lys Ser Lys Ala Ser Gly Ala Ala Leu Gly Gly Glu Asn Ala Gln  
 530 535 540

Gln Glu Gln Leu Asn Ala Ala Phe Ala His Lys Gln Leu Ile Ile Asn  
 545 550 555 560

Gln Ile Lys Asp Lys Val Glu Asn Ile Ser Lys Glu Ile Glu Ser Lys  
 565 570 575

Lys Glu Asp Ile Asn Thr Asn Asp Val Gln Met Ser Glu Leu Lys Ala  
 580 585 590

Glu Leu Ser Ala Leu Ile Thr Lys Cys Glu Asp Leu Tyr Lys Glu Tyr  
 595 600 605

Asp Val Gln Arg Thr Ser Val Leu Glu Leu Lys Tyr Asn Arg Lys Asn  
 610 615 620

Glu Thr Ser Val Ser Ser Ala Trp Asp Thr Gly Ser Ser Ser Ala Trp  
 625 630 635 640

Glu Glu Thr Gly Thr Thr Val Thr Asp Pro Tyr Ala Val Ala Ser Asn  
 645 650 655

Asp Ile Ser Ala Leu Ala Ala Pro Ala Val Asp Leu Gly Gly Pro Ala  
 660 665 670

Pro Glu Gly Phe Val Lys Tyr Gln Ala Val Tyr Glu Phe Asn Ala Arg  
 675 680 685

Asn Ala Glu Glu Ile Thr Phe Val Pro Gly Asp Ile Ile Leu Val Pro  
 690 695 700

Leu Glu Gln Asn Ala Glu Pro Gly Trp Leu Ala Gly Glu Ile Asn Gly

705		710		715		720
His Thr Gly Trp Phe Pro Glu Ser Tyr Val Glu Lys Leu Glu Val Gly						
		725		730		735
Glu Val Ala Pro Val Ala Ala Val Glu Ala Pro Val Asp Ala Gln Val						
		740		745		750
Ala Asp Thr Tyr Asn Asp Asn Ile Asn Thr Ser Ser Ile Pro Ala Ala						
		755		760		765
Ser Ala Asp Leu Thr Ala Ala Glu Asp Val Glu Tyr Tyr Ile Ala Ala						
		770		775		780
Tyr Pro Tyr Glu Ser Ala Glu Glu Gly Asp Leu Ser Phe Ser Ala Gly						
		785		790		800
Glu Met Val Met Val Ile Lys Lys Glu Gly Glu Trp Trp Thr Gly Thr						
		805		810		815
Ile Gly Ser Arg Thr Gly Met Phe Pro Ser Asn Tyr Val Gln Lys Ala						
		820		825		830
Asp Val Gly Thr Ala Ser Thr Ala Ala Ala Glu Pro Val Glu Ser Leu						
		835		840		845
Asp Gln Glu Thr Thr Leu Asn Gly Asn Ala Ala Tyr Thr Ala Ala Pro						
		850		855		860
Val Glu Ala Gln Glu Gln Val Tyr Gln Pro Leu Pro Val Gln Glu Pro						
		865		870		875
Ser Glu Gln Pro Ile Ser Ser Pro Gly Val Gly Ala Glu Glu Ala His						
		885		890		895
Glu Asp Leu Asp Thr Glu Val Ser Gln Ile Asn Thr Gln Ser Lys Thr						
		900		905		910
Gln Ser Ser Glu Pro Ala Glu Ser Tyr Ser Arg Pro Met Ser Arg Thr						
		915		920		925
Ser Ser Met Thr Pro Gly Met Arg Ala Lys Arg Ser Glu Ile Ala Gln						
		930		935		940

Val Ile Ala Pro Tyr Glu Ala Thr Ser Thr Glu Gln Leu Ser Leu Thr  
 945 950 955 960

Arg Gly Gln Leu Ile Met Ile Arg Lys Lys Thr Asp Ser Gly Trp Trp  
 965 970 975

Glu Gly Glu Leu Gln Ala Lys Gly Arg Arg Arg Gln Ile Gly Trp Phe  
 980 985 990

Pro Ala Thr Tyr Val Lys Val Leu Gln Gly Gly Arg Asn Ser Gly Arg  
 995 1000 1005

Asn Thr Pro Val Ser Gly Ser Arg Ile Glu Met Thr Glu Gln Ile  
 1010 1015 1020

Leu Asp Lys Val Ile Ala Leu Tyr Pro Tyr Lys Ala Gln Asn Asp  
 1025 1030 1035

Asp Glu Leu Ser Phe Asp Lys Asp Asp Ile Ile Ser Val Leu Gly  
 1040 1045 1050

Arg Asp Glu Pro Glu Trp Trp Arg Gly Glu Leu Asn Gly Leu Ser  
 1055 1060 1065

Gly Leu Phe Pro Ser Asn Tyr Val Gly Pro Phe Val Thr Ser Gly  
 1070 1075 1080

Lys Pro Ala Lys Ala Asn Gly Thr Thr Lys Lys  
 1085 1090